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10/575,262	04/10/2006	Fumiki Murakami	0152-0730PUS1	8789
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EXAMINER NGUYEN, HAIDUNG D				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/575,262

Applicant(s)

MURAKAMI, FUMIKI

Examiner

Haidung D. Nguyen

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/22)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/1/2010 has been entered.
2. Claims 1 and 3-24 are currently pending.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

4. Claims 1, 3-24 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakacho et al (WO 00/09518). U.S. Patent No 6,528,559, which is the U.S. Nation Stage of the Nakacho reference, is used as translation.

Regarding claims 1, 3, 4, Nakacho discloses a flame retardant composition which comprises: (A) at least one compound selected from the group consisting of (A-1) a metal oxide represented by the formula M_xO_y (in the formula, M is at least one element selected from the elements of Groups 5, 8, 10 and 11 of the Periodic Table, and x and y are numerals satisfying $0 < x \leq 5$ and $0 < y \leq 5$, respectively) (col 11, ln 60-61) and (A-2) a trivalent phosphorus compound (triphenyl phosphine - col 10, ln 66-67); and (B) at least

one phosphazene selected from a group consisting of a cyclic phosphazene compound represented by formula (1) corresponding to applicant's formula (2) and a straight or branched chain phosphazene compound represented by formula (2) corresponding to applicant's formula (3), wherein the flame retardant composition contains 0.1-60 parts by weight of the component (A) and 99.9-40 parts by weight of the component (B) in 100 parts by weight of the component (A) and the component (B) in total (col 11, ln 20-28).



(1)



(2)

Nakacho does not disclose the phosphazene compound having a difference of 40-100°C between the temperature at which weight reduction is 50% by weight and the temperature at which the weight reduction is 5% by weight when it is heated from room temperature to 600°C at a heating rate of 10°C/min in an inert gas atmosphere according to TGA, an acid value of not more than 1.0, a water content of not more than 1000 ppm measured at 150°C according to Karl Fischer's method, and the temperature at which the weight reduction of the phosphazene compound is 50% by weight is 320-460°C when it is heated from room temperature to 600°C at a heating rate of 10°C/min in an inert gas atmosphere according to TGA. However, since the phosphazene compound and the flame retardant composition of Nakacho is identical that set forth by applicant; thus, the phosphazene compound and the flame retardant of Nakacho would inherently possess the same properties as claimed. "Product of identical chemical

composition can not have mutually exclusive properties". A chemical composition and its properties are inseparable. "Where the claimed and prior art products are identical or substantially identical in structure or composition, a prima facie case of either anticipation or obviousness has been established." *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Regarding claim 5, Nakacho discloses the flame retardant composition according to claim 1, wherein the metal M in the component (A-1) is at least one metal selected from the group consisting of V, Nb, Fe, Ni, Pd, Pt, Cu, Ag and Au (Nakacho, col 11, ln 60-61).

Regarding claim 6, Nakacho discloses the flame retardant composition according to claim 1, wherein the component (A-1) is at least one compound selected from the group consisting of iron oxide, nickel oxide, palladium oxide and copper oxide (Nakacho, col 11, ln 60-61).

Regarding claims 7-9, Nakacho discloses the flame retardant composition according to claim 1, the component (A-2) is triarylphosphines (Nakacho triphenyl phosphine - col 10, ln 66-67).

Regarding claims 10-14, Nakacho discloses the flame retardant composition according to claim 1 which further comprises (C) an aromatic resin, wherein the component (C) is polyphenylene ether resin (Nakacho col 8, ln 33-53) and the weight

ratio of the component (C) and the component (B) is $(C)/(B) = 95/5 - 5/95$ (Nakacho col 9, ln 9-14).

Regarding claims 15 and 16, Nakacho discloses a flame retardant resin composition which contains (a) a resin and (b) the flame retardant composition described in claim 1, which contains 1-1000 parts by weight of the component (b) based on 100 parts by weight of the component (a) (Nakacho col 11, ln 20-28).

Regarding claims 17 and 18, Nakacho discloses the flame retardant resin composition according to claim 15, wherein the component (a) comprises at least one thermoplastic resin selected from the group consisting of polycarbonate resins, polyphenylene ether resins, polyphenylene sulfide resins, polypropylene resins, polyethylene resins, polystyrene resins, ABS resins, polyalkylene terephthalate resins, polyamide resins, thermotropic liquid crystals and elastomer-containing polystyrenes (Nakacho col 8, ln 34-55) and the component (A-1) in the flame retardant composition which is the component (b) is iron oxide and/or copper oxide (Nakacho col 11, ln 60-61).

Regarding claim 19, Nakacho discloses the flame retardant resin composition according to claim 15, wherein the component (a) comprises at least one thermoplastic resin selected from the group consisting of polycarbonate resins, polyphenylene ether resins, polyphenylene sulfide resins, polypropylene resins, polyethylene resins, polystyrene resins, ABS resins, polyalkylene terephthalate resins, polyamide resins, thermotropic liquid crystals and elastomer-containing polystyrenes (Nakacho col 8, ln 34-55) and the component (A-1) in the flame retardant composition which is the

component (b) is at least one phosphine selected from triarylphosphines (Nakacho triphenyl phosphine - col 10, ln 66-67).

Regarding claim 20, Nakacho discloses the flame retardant resin composition according to claim 15, wherein the component (a) comprises at least one hardening resin selected from the group consisting of unsaturated polyester resins, vinyl ester resins, diallyl phthalate resins, epoxy resins, cyanate resins, xylene resins, triazine resins, phenolic resins, urea resins, melamine resins, benzoguanamine resins, urethane resins, ketone resins, alkyd resins, furan resins, oxetane resins, styrylpyridine resins and synthetic rubbers (Nakacho col 8, ln 56 to col 9, ln 8)

Regarding claim 21, Nakacho discloses the flame retardant resin composition according to claim 15, wherein the component (a) is an epoxy resin (Nakacho col 8, ln 61), and the component (A-1) in the flame retardant composition which is the component (b) is at least one oxide selected from nickel oxide, palladium oxide, iron oxide and copper oxide (Nakacho, col 11, ln 60-61).

Regarding claim 22, Nakacho discloses the flame retardant resin composition according to claim 15, wherein the component (a) is an epoxy resin (Nakacho col 8, ln 61), and the component (A-2) in the flame retardant composition which is the component (b) is at least one phosphine selected from triarylphosphines (Nakacho, triphenyl phosphine - col 10, ln 66-67).

Regarding claim 23, Nakacho discloses the flame retardant resin composition according to claim 15 or 16, wherein the component (a) is an epoxy resin, and the component (b) further comprises (C) an aromatic resin which is a polyphenylene ether

resin (Nakacho col 8, ln 34-55). Nakacho does not disclose the polyphenylene ether resin having a number average molecular weight of 500-5000. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the polyphenylene ether resin having a number average molecular weight within the claimed range because one of ordinary skill would be able to carry out such selection depending on the end use and the results are reasonably predictable.

Regarding claim 24, Nakacho discloses a molded article comprising the flame retardant resin composition according to claim 14 (Nakacho, col 5, ln 61-63).

5. Claims 1, 3-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al (WO01/070844). U.S. 2003/0114606, which is the U.S. Nation Stage of the Taniguchi reference, is used as translation.

Regarding claims 1, 3, 4, Taniguchi discloses a flame retardant composition which comprises: (A) at least one compound selected from the group consisting of (A-1) a metal oxide (aluminum oxide, zinc oxide, para 0091, ln 7-9) and (A-2) a trivalent phosphorus compound (triphenyl phosphine – para 0104, ln 32); and (B) at least one phosphazene selected from a group consisting of a cyclic and a chain phosphazene compound represented by formula (1) corresponding to applicant's formulas (2) and (3), wherein the flame retardant composition contains 0.1-60 parts by weight of the component (A) and 99.9-40 parts by weight of the component (B) in 100 parts by weight of the component (A) and the component (B) in total (para 0100, ln 1-16).



Formula (1)

Taniguchi does not disclose the metal oxide being selected from the group consisting of iron oxide, nickel oxide, palladium oxide and copper oxide. However, Nakacho discloses the flame retardant composition comprises metal oxide selected from the group consisting of iron oxide, nickel oxide, palladium oxide and copper oxide (Nakacho, col 11, ln 60-61).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute iron oxide, nickel oxide, palladium oxide and copper oxide taught by Nakacho in place of zinc oxide in the flame retardant composition of Taniguchi to obtain predictable result, since Nakacho recognizes that zinc oxide and iron oxide and copper oxide are equivalent and interchangeable (Nakacho, col 11, ln 60-61).

Taniguchi does not disclose the phosphazene compound having a difference of 40-100°C between the temperature at which weight reduction is 50% by weight and the temperature at which the weight reduction is 5% by weight when it is heated from room temperature to 600°C at a heating rate of 10°C/min in an inert gas atmosphere according to TGA, an acid value of not more than 1.0, a water content of not more than 1000 ppm measured at 150°C according to Karl Fischer's method, and the temperature at which the weight reduction of the phosphazene compound is 50% by weight is 320-460°C when it is heated from room temperature to 600°C at a heating rate of 10°C/min

in an inert gas atmosphere according to TGA. However, since the phosphazene compound and the flame retardant composition of Taniguchi is identical that set forth by applicant; thus, the phosphazene compound and the flame retardant of Taniguchi would inherently possess the same properties as claimed. "Product of identical chemical composition can not have mutually exclusive properties". A chemical composition and its properties are inseparable. "Where the claimed and prior art products are identical or substantially identical in structure or composition, a prima facie case of either anticipation or obviousness has been established." *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Regarding claims 7-9, Taniguchi discloses the flame retardant composition according to claim 1, the component (A-2) is triarylphosphines (Taniguchi triphenyl phosphine – para 0104, In 32).

Regarding claims 10-14, Taniguchi discloses the flame retardant composition according to claim 1 which further comprises (C) an aromatic resin, wherein the component (C) is polyphenylene ether resin (Taniguchi para 0109, In 21) and the weight ratio of the component (C) and the component (B) is $(C)/(B) = 95/5 - 5/95$ (Taniguchi para 0109, In 48-50).

Regarding claims 15 and 16, Taniguchi discloses a flame retardant resin composition which contains (a) a resin and (b) the flame retardant composition

described in claim 1, which contains 1-1000 parts by weight of the component (b) based on 100 parts by weight of the component (a) (Taniguchi para 0109, ln 48-50).

Regarding claims 17-19, Taniguchi discloses the flame retardant resin composition according to claim 15, wherein the component (a) comprises at least one thermoplastic resin selected from the group consisting of polycarbonate resins, polyphenylene ether resins, polyphenylene sulfide resins, polypropylene resins, polyethylene resins, polystyrene resins, ABS resins, polyalkylene terephthalate resins, polyamide resins, thermotropic liquid crystals and elastomer-containing polystyrenes (Taniguchi para 0109).

Regarding claims 20 - 22, Taniguchi discloses the flame retardant resin composition according to claim 15, wherein the component (a) comprises at least one hardening resin selected from the group consisting of unsaturated polyester resins, vinyl ester resins, diallyl phthalate resins, epoxy resins, cyanate resins, xylene resins, triazine resins, phenolic resins, urea resins, melamine resins, benzoguanamine resins, urethane resins, ketone resins, alkyd resins, furan resins, oxetane resins, styrylpyridine resins and synthetic rubbers (Taniguchi, epoxy para 0022-0023 and 0109)

Regarding claim 23, Taniguchi discloses the flame retardant resin composition according to claim 15 or 16, further comprises (C) an aromatic resin which is a polyphenylene ether resin (Taniguchi para 0109, ln 21). Taniguchi does not disclose the polyphenylene ether resin having a number average molecular weight of 500-5000. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select the polyphenylene ether resin having a number average

molecular weight within the claimed range because one of ordinary skill would be able to carry out such selection depending on the end use and the results are reasonably predictable.

Regarding claim 24, Taniguchi discloses a molded article comprising the flame retardant resin composition according to claim 14 (Taniguchi, para 0111, ln 9).

Response to Arguments

6. Applicant's arguments been considered but are moot in view of the new ground(s) of rejection.

Examiner Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Haidung D. Nguyen whose telephone number is (571)270-5455. The examiner can normally be reached on M-Th: 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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\HN\
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3/245/2010